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Niall A. Paul
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July 21, 2025

Dear Mr. Paul,

You have asked me to respond in rebuttal to the supplemental expert report of Dr. Elizabeth Schlezinger dated July 2, 2025 and, on a document, entitled "DECLARATION OF JENNIFER SCHLEZINGER, PH.D. executed on March 18, 2025.

As a physician with board certification in Occupational and Environmental Medicine, who has spent 26 years diagnosing patients with occupational exposures to a variety of chemicals and who has authored 5 publications on interpreting laboratory test results on patients with suspected occupational diseases, it is my considered opinion that Dr. Schlezinger is wrong about her conclusions relating to ongoing harm to human health – more specifically irreparable harm to any identified individual. She misapplies the MCL and overstates the effects of the exposure of Lubeck customers to drinking water that occasionally exceeds the HFPO-DA MCL.

To understand my opinion an explanation of how the EPA establishes an MCL both generally and with reference to HFPO-DA specifically may help. Dr. Schlezinger addresses in bullet 19 of her report and I will elaborate from that discussion. I agree with her characterization of this process as "standard practice" but it is important to clearly appreciate what that means. The first step is to identify the concentration of the contaminant at which adverse health effects are observed, in this case called the lowest-observed-adverse-effect level (LOAEL) or at which no-adverse-effects-are-observed (NOAEL). For HFPO-DA, we do not have the results from epidemiological studies (ie. studies of humans) and as a result no LOAEL or NOAEL. This reflects the inherent limitations in the epidemiological studies we can perform in the real world. The EPA summarizes the results of studies on perfluorooctanoic acid (PFOA) exposure in humans in stating: "The associations for most epidemiology endpoints are mixed." and for perfluorooctanesulfonic (PFOS): "As with PFOA, the associations for most epidemiology endpoints are inconsistent".ⁱ Therefore, we rely on studies in animals.

As Dr. Schlezinger points out in her declaration, for HFPO-DA, the adverse effect level was derived from studies performed on rodents. Such studies allow researchers to expose animals to a spectrum of known doses of the contaminant in a controlled manner, including much higher doses than humans are exposed to over continuous periods of time. Of course, there are many unknown variables when extrapolating from such results to determine the MCL for humans, such as differences between species, duration of exposure, increased vulnerability among children or the elderly, etc. Because we generally do not have data from experiments to guide this extrapolation, we apply what are called "uncertainty factors" which are sometimes also referred to as "safety factors" (SF, although there are some differences between UF and SF), are applied. The EPA stated in a 1993 document: "While the original selection of SFs appears

to have been rather arbitrary (Lehman and Fitzhugh, 1954), subsequent analysis of data (Dourson and Stara, 1983) lends theoretical (and in some instances experimental) support for their selection."ⁱⁱ More recently in 2002 (this is citation #17 in Dr. Schlezinger's report), the EPA acknowledged persistent data gaps in these UFs. In reference to the UF for susceptible populations for example: "The Technical Panel urges the development of data to support the selection of the appropriate size of this factor, but it recognizes that often there are insufficient data to support a factor other than the default."ⁱⁱⁱ

In other words, as the name indicates, there is uncertainty in how any MCL is derived because we simply do not have the data. It is important not to lose sight of this point in order to interpret any MCL appropriately. The MCL is a type of acceptable daily intake (ADI), in this case, from drinking water. The EPA states:

"The ADI is commonly defined as the amount of a chemical to which a person can be exposed on a daily basis over an extended period of time (usually a lifetime) without suffering a deleterious effect. The ADI concept has often been used as a tool in reaching risk management decisions (e.g., establishing allowable levels of contaminants in foodstuffs and water.)"

*"In practice, the ADI is viewed by many (including risk managers) as an "acceptable" level of exposure, and, by inference, any exposure greater than the ADI is seen as "unacceptable." This strict demarcation between what is "acceptable" and what is "unacceptable" is contrary to the views of most toxicologists, who typically interpret the ADI as a relatively crude estimate of a level of chronic exposure which is not likely to result in adverse effects to humans. The ADI is generally viewed by risk assessors as a "soft" estimate, whose bounds of uncertainty can span an order of magnitude."*ⁱⁱ

*"Awareness of the "softness" of the ADI estimate, as discussed above, argues for careful case-by-case consideration of the toxicological implications of individual situation, so that ADIs are not given a degree of significance that is scientifically unwarranted. In addition, the ADI is only one factor in a risk management decision and should not be used to the exclusion of other relevant factors."*ⁱⁱ

In the case of HFPO-DA, Dr. Schlezinger states in her declaration that a reference dose (RfD) for humans was established by applying UFs: "Four standard uncertainty factors were applied: 10 for interhuman variability, 3 for interspecies variability, 10 for extrapolation from a sub-chronic to chronic exposure duration, and 10 to account for database deficiencies." The MCL is derived by reducing the human equivalent dose thought to be the lowest dose causing adverse effects among rodents HFPO-DA by these four factors, which equals $10 \times 10 \times 10 \times 3 = 3000$ -fold lower. It is worth noting further that the highest level in the Lubeck Public Service District's drinking water depicted in a plot on page 6 of Dr. Schlezinger's report is 40 parts per trillion (ppt), a measurement that is disputed, yet nevertheless is well within what the EPA calls "the bounds of uncertainty" above. Not only do the UFs reflect data gaps, but they also greatly err on the side of safety as is appropriate for setting safe drinking water standards. But this is a second reason, beyond an absence of data, why exceeding this standard, especially within the bounds of uncertainty as in this case, cannot be interpreted as being synonymous with an increased risk of adverse health effects. Therefore, in advising a patient who consumed the drinking water of Lubeck Public Service District with these measured values HFPO-DA, I would reassure them by explaining that the MCL is not a "hard" threshold and that drinking water with

measurements exceeding this value does not mean they will suffer adverse effects. The MCL is a crude estimate with many safety factors applied to consider worst case scenarios when we do not have actual data to guide us. Even the highest, disputed measured level during this period is within the bounds of those factors.

As a final demonstration of the uncertainty in setting drinking water standards, patients might find it helpful to learn that acceptable levels vary significantly between jurisdictions. The European Union, for example, has set a standard for the totality of PFAS substances of 0.50 ug/l (or 500 ppt) and for the sum of PFASs of concern of 0.10 ug/l (or 100 ppt).^{iv} These standards are clearly not only much less stringent than those of the EPA but use a different approach illustrating the inherent uncertainty in establishing such standards. Patients would be reassured in knowing that since 16 of the 18 types of PFAS measured in the Lubeck Public Service District's drinking water were undetectable, that the measured results in 2023-2024 would be in compliance with European standards.

Dr. Schlezinger's characterization of her plot in her declaration as "demonstrating the significant and sustained contamination events" and that "It is clear from the data that this reference dose-derived safe level has been exceeded multiple times and over long periods." is not an accurate description in my opinion. There are clearly three peaks depicted when the measured HFPO-DA levels were above the MCL, with the next reading after each peak being undetectable. This is not a "sustained" elevation "over long periods". Dr. Schlezinger further assumes a linear relationship between readings without any rationale, which becomes problematic when consecutive measurements go from peak to undetectable levels without any intermediate measurements, as is true for the declines of all of the peaks and, in the opposite direction, for the increase in one of the elevations. Because of this, the width of the peaks in Dr. Schlezinger's plot becomes dependent on the timing of the samples, not any actual data.

Dr. Schlezinger on page 6 of her report overemphasizes the health significance of these elevations while downplaying that of the annual average exposure level, which was below the MCL for HFPO-DA in the Lubeck Public Service District's drinking water. She states, "It is a false equivalent to say that no harm has occurred because the yearly average exposure remained below the MCL." The duration of exposure is a critically important factor in assessing the risk of adverse health effects. It is part of the MCL estimate through an exposure assumed to occur over a 70-year period and is an essential element of the exposure history taken from a patient when there is a concern about an environmentally-related disease. The running annual average (rather than isolated measurements) of drinking water contaminants is also a well-accepted measure of drinking water safety. For example, the Michigan Department of Environment, Great Lakes, and Energy (EGLE) used a running annual average for seven PFAS compounds, including HFPO-DA, for compliance with specified MCLs under the authority of the Safe Drinking Water Act for approximately 2,700 public drinking water supplies.^v Dr. Schlezinger misapplies an MCL developed for a 70-year duration of exposure to much shorter-term exposures. The EPA stated very clearly it was unable to establish health advisory levels for shorter periods (the standard time periods are one or 10-day exposures) to HFPO-DA due to "insufficient toxicity information available."^{vi}

I would therefore further reassure my patients in stating that I regard the average level of HFPO-DA over a year in drinking water as more relevant to their health than 3-4 isolated measurements and that this average has been consistently below the MCL.

Dr. Schlezinger points out on page 6 of her declaration that the population supplied by the Lubeck Public Service District's drinking water has a higher baseline serum concentration of PFOA compared to a national sample. She repeats this opinion in her supplementary report in stating that "given Ms. Robinson's body burden of PFOA and her continued exposure to PFOA through contact with LSPD water, I conclude with a reasonable degree of scientific certainty that the HFPO-DA concentration threshold to harm Ms. Robinson is less than 10 ppt."

However, at issue here is whether the recently measured drinking water levels in 2023 and 2024 can be said to increase any risk of adverse health effects. For the reasons outlined above, values measured above the MCL simply are too crude to allow one to make such a conclusion. Dr. Schlezinger is ascribing a level of precision to the MCL which simply does not exist. I would explain to my patients that, while serum levels of PFOA may provide information on past exposure, the same cannot be said regarding future health risks at this time. I would refer them to the Agency for Toxic Substances and Disease Registry (ATSDR) of the US federal government which states that for per- and polyfluoroalkyl substances (PFAS), which include HFPO-DA: "PFAS blood levels do not predict future health outcomes..."^{vii} I would not recommend any additional medical tests or investigations solely on the basis of the measured levels of HFPO-DA in the Lubeck Public Service District's drinking water from 2023-2024.

A second problem is that when Dr. Schlezinger opines about harm to Ms. Robinson specifically, she is drawing conclusions about an individual when the data she uses can only allow generalizations regarding populations. MCLs are based on studies among large numbers of animals with inferences to people, and such information cannot tell us about what is happening to any one person to a reasonable degree of certainty. Just as the science simply does not allow one to determine any one specific individual who would benefit from a lowering in PFAS levels, it does not support the notion that any one individual is being harmed to a reasonable degree of certainty.

In her supplementary report, Dr. Schlezinger states "Lubeck community members, such as Ms. Robinson, who continue to use the water coming from the LPSD into their homes, even if they do not drink or cook with it, are experiencing harm, because their other uses of that water contribute to and increase their aggregate risk of harm from exposure to the PFAS and HFPO-DA in that water." This opinion is at odds with guidance provided by the EPA which states: A Note about PFAS and Water: Studies have shown that only a small amount of PFAS can get into your body through your skin. Therefore, showering, bathing, and washing dishes in water containing PFAS are unlikely to significantly increase your risk."^{viii} I therefore advise patients, such as those in the Lubeck community, that their water is safe for bathing, showering, swimming, washing clothes, and cleaning, consistent with advice provided by the Minnesota Department of Health.^{ix} I would discuss with patients that there are health benefits from growing and eating garden produce. While watering gardens with water containing PFAS can increase the levels of PFAS in plants, unless a person is consuming high amounts of homegrown produce throughout the year, the produce is not likely to be a major contributor of PFAS exposure for adults or children, again consistent with recommendations from the Minnesota Department of Health.^x

Let me also state that as a clinician, I have frequently seen the harm that arises when patients believe they are being overexposed to chemicals that they have been told will, more likely than not, adversely impact their health. Dr. Schlezinger's opinion with which I disagree appears to be that any ongoing use of the Lubeck Public Service District's drinking water is harming the

community. If this opinion were to be accepted by members of the community, it will understandably cause enormous emotional distress. It may also lead patients to implement disruptive and expensive measures in an attempt to reduce exposures, even when these are not justified. While she makes no specific recommendations to limit the community's exposure, logical extensions of her opinion are that there can be no local gardens watered by Lubeck Public Service District's drinking water and that the residents would either have to move or implement measures to completely supply their homes water from some other source. In other words, Dr. Schlezinger's opinion, which is not consistent with public health recommendations, has the potential to harm this community.

In summary, it is my opinion, to a reasonable degree of medical certainty, that the recently measured levels of HFPO-DA in the Lubeck Public Service District's drinking water (from 2023 to 2024), noting that some measurements exceeded 4 ppt, do not represent an increased risk of adverse health effects for the residents consuming or otherwise using this water. It is further my belief that continued exposure of Lubeck customers to drinking water that contains the same general levels of HFPO-DA measured in 2023-2024 will not result in increased risk of adverse health effects in the future.

Sincerely,



Christopher Martin, MD, MSc

ⁱ <https://www.federalregister.gov/documents/2020/03/10/2020-04145/announcement-of-preliminary-regulatory-determinations-for-contaminants-on-the-fourth-drinking-water#h-57>

ⁱⁱ <https://www.epa.gov/iris/reference-dose-rfd-description-and-use-health-risk-assessments#1.2.2>

ⁱⁱⁱ <https://www.epa.gov/sites/default/files/2014-12/documents/rfd-final.pdf>

^{iv} <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020L2184&from=EN>

^v <https://www.michigan.gov/pfasresponse/drinking-water/mcl>

^{vi} <https://www.epa.gov/system/files/documents/2022-06/drinking-water-genx-2022.pdf>

^{vii} <https://www.atsdr.cdc.gov/pfas/blood-testing/index.html>

^{viii} <https://www.epa.gov/pfas/meaningful-and-achievable-steps-you-can-take-reduce-your-risk>

^{ix}

<https://www.health.state.mn.us/communities/environment/hazardous/topics/pfashealth.html#:~:text=People%20can%20also%20be%20exposed,understand%20PFAS%20levels%20in%20water:>

^x <https://www.health.state.mn.us/communities/environment/hazardous/docs/pfas/pfasgardenproduce.pdf>

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Professor of Medicine and Occupational Medicine, West Virginia University
Visiting Scholar, Barcelona Institute for Global Health (ISGlobal)**

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CURRENT POSITIONS

1999 - Professor (2012-), Associate Professor (2006-12), Assistant Professor (2000-06), Instructor (1999-2000); Medicine and Occupational Medicine, West Virginia University Schools of Public Health and Medicine (WVU)
2011 - Founding Director, Global Engagement Office, Health Sciences Center, WVU
2016 - Designated Institutional Official, WVU School of Public Health
2002 - Program Director, Occupational Medicine Residency, West Virginia University
2023 - Visiting Scholar, Barcelona Institute for Global Health (ISGlobal)

EDUCATION

1999 ROYAL COLLEGE FELLOWSHIP IN OCCUPATIONAL MEDICINE
University of Alberta, Edmonton, Alberta, Canada
1998 MASTER OF SCIENCE, ENVIRONMENTAL HEALTH SCIENCES
University of Alberta
1994 DOCTOR OF MEDICINE
Memorial University of Newfoundland, St. John's NL, Canada
1989 BACHELOR OF SCIENCE, BIOLOGY
McGill University, Montreal, Quebec, Canada

CURRENT AND PAST APPOINTMENTS

2023 – 26 Visiting Scholar, Barcelona Institute for Global Health (ISGlobal)
2022 – 24 NIOSH Respiratory Health Division, through Intergovernmental Personnel Act (IPA) Agreement
2020 - 21 NIOSH – IPA Agreement, COVID-19
2016 - 25 Designated Institutional Official, School of Public Health, West Virginia University (WVU)
2012 - Professor of Medicine and Occupational Medicine, WVU
2011 - Director, Global Engagement Office, Health Sciences Center, WVU
2007 - 16 Director, Institute of Occupational and Environmental Health, WVU
2006 - 12 Associate Professor, Departments of Community Medicine and Medicine, WVU School of Medicine
2004 - 11 Adjunct Clinical Faculty, West Virginia School of Osteopathic Medicine
2002 - 25 Program Director, Occupational and Environmental Medicine Residency, WVU
2000 - 06 Assistant Professor, Department of Community Medicine, WVU School of Medicine
2000 - 03 Adjunct Professor, Joint Department of Epidemiology, Biostatistics and Occupational Health, Faculty of Medicine, McGill University

1999 - 02 Associate Program Director, Occupational Medicine Residency, WVU School of Medicine
 1999 - 2000 Clinical Instructor, Department of Community Medicine, WVU School of Medicine
 1994 - 1999 Occupational Medicine Residency, University of Alberta, Edmonton, Alberta

CERTIFICATION AND LICENSURES

2000 - Diplomate, American Board of Preventive Medicine, Occupational and Environmental Medicine, ID #24557 (Recertified 2010, 2020)
 1999 - West Virginia Board of Medicine, #19856
 1999 - Fellow of the Royal College of Physicians and Surgeons of Canada, Occupational Medicine, ID #522814
 1996 Licentiate of the Medical Council of Canada, #79845

FELLOWSHIPS AND AWARDS:

Fellow, American College of Occupational and Environmental Medicine (FACOEM)

2025 Nominated, Board of Directors, American Board of Preventive Medicine
 2024 Edythe J. Levit Distinguished Service Award, National Board of Medical Examiners (NBME)
 2022 Excellence in Education or Research in OEM Award, ACOEM
 2022 NIOSH Bullard-Sherwood Research to Practice (r2p) Award, Honorable Mention, Intervention category
 2015 Global Health Learning Opportunities Ambassador, Association of American Medical Colleges
 2010 Distinguished Teacher Award, Senior, MD degree program
 2004 Dean's Award for Excellence in Education
 2002, 04, 05 Nominated, WVU School of Medicine John W. Traubert Award
 2002, 04 Outstanding Speaker, Tropical Medicine and Parasitology Course
 2002 Percival L. MacLachlan Award, chosen by the 2nd year medical student class for "unusual teaching ability and sincere interest in the progress of the entire class"

COMMITTEE AND ADMINISTRATIVE RESPONSIBILITIES (Past 5 years)

National Board of Medical Examiners (NBME)

2021 Forms Review and Remote Pool Review Group
 2018 - 24 Global Advisory Committee
 2014 - 23 Test Committee Representative Member, NBME Council
 2013 - 20 Biostatistics & Epidemiology/Population Health Item Writing and Review Committee, NBME

National Institute for Occupational Safety and Health (NIOSH)

2004 - 24 *Ad hoc* member, Special Emphasis Panel, Occupational Safety and Health Education and Research Centers

Consortium of Universities for Global Health (CUGH)

2016-20 Education Committee, Consortium of Universities for Global Health (CUGH)

Royal College of Physicians and Surgeons of Canada

2022 - 23 Working Group for In-Depth Review of Occupational Medicine, Royal College of Physicians and Surgeons of Canada

Sultanate of Oman

2023 - Board of Trustees, National University of Science and Technology, Sultanate of Oman

West Virginia University School of Medicine

2002 - Global Health Program Advisory Committee

1999 - 2020 MD Curriculum Committee

West Virginia University Health Sciences Center

2012 - Global Engagement Steering Committee (*ex officio*)

2017 - 22 Affiliation Partnership Council with the Louis A. Johnson Veterans' Administration Medical Center in Clarksburg

West Virginia University

2020 - 21 WVU COVID Strike Force

State of West Virginia

2020 - 21 West Virginia COVID-19 Vaccine Medical Advisory Group

2020 - 21 West Virginia COVID-19 Vaccine Messaging Work Group

PROFESSIONAL SOCIETIES:

Member, Cunningham Society (By invitation only, a group limited to 25 senior Canadian occupational physicians.)

Editorial Board, *Archives of Environmental & Occupational Health*

Ad hoc reviewer for: Annals of Epidemiology, American Journal of Industrial Medicine, International Journal of Occupational and Environmental Health, American Journal of Preventive Medicine, Journal of Occupational and Environmental Medicine, Archives of Environmental and Occupational Health, The Lancet Regional Health - Western Pacific, Journal of Occupational Medicine and Toxicology, Occupational Medicine, West Virginia Medical Journal

CLINICAL AND CONSULTING ACTIVITIES

- Physician Reviewer, Division of Vaccine Injury Compensation, Health Resources and Services Administration, US Department of Health and Human Services
- US Department of Justice Radiation Exposure Compensation Program
- National Institute of Occupational Safety and Health (NIOSH)
- Workers' Compensation Boards of West Virginia, Nova Scotia, Alberta, New Brunswick, the Northwest Territories and Nunavut (Canada)

PUBLICATIONS

SCIENTIFIC & PEER-REVIEWED ARTICLES (chronological, most recent first)

Martin, CJ. The Slow-Moving Crisis of Training in Occupational and Environmental Medicine. *J Occup Environ Med.* 2024 Oct 1;66(10):e528-e536.

Martin CJ, Woods S, Bertke S, Pinkerton L, Jin C. Increased Mortality Associated With Disability Among Workers' Compensation Claimants With Upper Extremity Neuropathy. *J Occup Environ Med*. 2023 Sep 1;65(9):798-802.

Lultschik J and Martin CJ. Preventive Medicine for Rural America: Why More Training Programs Must Be Here. *J Public Health Manag Pract*. 2021 May-Jun 01;27(Suppl 3):S151-S154.

Miller LA and the HRSA-Funded Preventive Medicine Residency Program Directors Workgroup (Blanc PD, Costales VC, Goodman RA, Green-McKenzie J, Hill LL, Holt CT, Hutchins SS, Kesler DO, Kuo AA, Lane DS, Lultschik JL, Mann J, Martin CJ, Peck C, Porterfield DS, Power LE, Thomas PA). The SARS-CoV-2 pandemic: real-time training and service for preventive medicine residents. *J Public Health Manag Pract*. 2021 May-Jun 01;27(Suppl 3):S123-S128.

Martin CJ, Jin C, Bertke SJ, Yiin JH and Pinkerton LE. Increased overall and cause-specific mortality associated with disability among workers' compensation claimants with low back injuries. *Am J Ind Med*. 2020 Mar;63(3):209-217.

Doney B, Hnizdo E, Syamlal G, Kullman G, Burchfiel C, Martin CJ, Mujuru P. Prevalence of Chronic Obstructive Pulmonary Disease Among US Working Adults Aged 40 to 70 Years: National Health Interview Survey Data 2004 to 2011. *J Occup Environ Med*. 2014 Oct;56(10):1088-93.

Doney B, Hnizdo E, Graziani M, Kullman G, Burchfiel C, Baron S, Fujishiro K, Enright P, Hankinson JL, Stukovsky KH, Martin CJ, Donohue KM, Barr RG. Occupational Risk Factors for COPD Phenotypes in the Multi-Ethnic Study of Atherosclerosis (MESA) Lung Study. *COPD*. 2014 Aug;11(4):368-80.

Demian C and Martin CJ. Occupational Medicine Forum. *J Occup Environ Med*. 2013 Jan; 55(1):112-114.

Baughman P, Marot JL, Lange P, Martin CJ, Shankar A, Petsonk EL Hnizdo E. Combined effect of lung function level and decline increases morbidity and mortality risks. *Eur J Epidemiol* 2012 Dec;27(12):933-43.

Lucchini R, Martin CJ and Doney B. From manganism to manganese-induced parkinsonism: A conceptual model based on the evolution of exposure. *NeuroMol Med* 2009 11: 311-321.

Martin CJ, Doney B, and Antonini J. A Case Report of Cadmium Elevation Associated with a Brand of Cigarettes. *Occup Med (Lond)*. 2009 Mar;59(2):130-2.

Erdogan MS, Martin CJ. Miscellaneous occupational lung diseases. *Arch Environ Occup Health*. 2008 Summer;63(2):93-6.

Kesler D, Upfal M, Tacoronti R, Avery AN, Martin C, Singer M, Wright D, Hartenbaum N, Patterson W, Dreyzehner J, Carson C, Harber P, McLellan R, Orford R. American College of Occupational and Environmental Medicine competencies--2008. *J Occup Environ Med*. 2008 Jun;50(6):712-24

Sun C and Martin CJ. Occupational Medicine Forum. *J Occup Environ Med*. 2007 Nov; 49(11):1291-1294.

Sun C, Jin C, Martin C, Gerbo R, Wang Y, Hu W, Atkins J, Ducatman A. Cost and outcome analyses on the timing of first independent medical evaluation in patients with work-related lumbosacral sprain. *J Occup Environ Med*. 2007 Nov;49(11):1264-8.

Martin CJ. Manganese neurotoxicity: Connecting the dots along the continuum of dysfunction. *Neurotoxicology*. 2006 May;27(3):347-9.

Martin CJ, Werntz III CL, and Ducatman AM. Letter of Reply Re: The interpretation of zinc protoporphyrin changes in lead intoxication: A case report and review of the literature. *Occup Med* 55(5):406; 2005.

Martin CJ, Werntz III CL, and Ducatman AM. The interpretation of zinc protoporphyrin changes in lead intoxication: A case report and review of the literature. *Occup Med* 54(8):587-91; 2004.

Cutlip W, and Martin CJ. Hand-arm vibration syndrome: Are we left out in the cold? *OEM Report*; February 2004.

Islam S, Doyle EJ, Velilla A, Martin CJ, Ducatman AM. Epidemiology of compensable work-related ocular injuries: Incidence and risk factors. *J Occup Env Med* 42(6); 575-581; 2000.

Martin CJ, Le XC, Guidotti TL, Yalcin S, Chum E, Audette RJ, Liang C, Yuan B, Zhang X, Wu J. Zinc exposure in Chinese foundry workers. *Am J Ind Med* 35:574-580;1999.

Guidotti TL, Martin CJ. Evaluation of the worker with suspected occupational lung disease, *Isr J Occup Health* 2:129-144; 1998. (Also in: *Occupational Medicine: State of the Art Reviews* 13(2):279-288.)

Guidotti TL, Audette RJ, Martin CJ. Interpretation of the trace element profile for workers occupationally exposed to metals. *Occup Med* 47(8):497-503;1997.

Martin CJ, Guidotti TL, Langard S. Respiratory hazards of welding. *Clin Pulm Med* 4(4):194-204;1997.

Martin C. Hunter's Diseases of Occupations, 8th Edition (Book Review). *Chron Dis Can* 17 (3/4):125, 1996.

Book Chapters

Brundage S and Martin CJ. 'Cadmium', 'Chromium' and 'Cobalt'. Hunter's Diseases of Occupations. Eleventh edition. CRC Press, Taylor & Francis Group, Abingdon, United Kingdom; 2025. (Submitted).

Ranavaya M and Martin CJ. Chapter 5: How to Analyze Causation and Return to Work Issues. in Ranavaya M, *Physician's Guide to Medicolegal Practice*. AMA Press; 2019.

Martin CJ, Donahue A, and Meyer JD. Chapter 22: Bacteria, pages 347-410 in Stave G and Wald P, eds. *Physical and Biological Hazards of the Workplace*. Third edition. Philadelphia. Wiley Interscience; 2016.

Martin CJ. Chapter 3 Epidemiology, Biostatistics and Surveillance in Markle WH, Fisher MA and Smego RA eds. *Understanding Global Health*. Second Edition. McGraw-Hill; 2013.

Leslie S and Martin CJ. Zinc, pages 234-240 in Hoffman HE, Palmer RB and Phillips S eds. *Clinical Practice of Biological Monitoring*. OEM Press; 2012.

Martin CJ. Chapter 3 Epidemiology, Biostatistics and Surveillance, pages 37-60 in Markle WH, Fisher MA and Smego RA eds. *Understanding Global Health*. First Edition. McGraw-Hill; 2007.

Martin CJ, Ducatman AM. Chapter 33.2 Non-Ionizing Radiation, pages 870-879 in Rosenstock L, Cullen M, Brodtkin C, Redlich C, eds. *Textbook of Clinical Occupational and Environmental Medicine*. Second Edition. London. Elsevier; 2005.

Martin CJ, and Meyer JD. Chapter 22: Bacteria, pages 409-494 in Wald P, Stave G, eds. *Physical and Biological Hazards of the Workplace*. Second edition. Philadelphia. Wiley Interscience; 2002.

Abstracts (presentations selected through peer review only)

Martin CJ, Mohammed CA, and Al Shafae M. WFME Accreditation of an MD Program: The Story of a Successful Tripartite Collaboration. World Federation for Medical Education Conference. May 2025, Bangkok, Thailand.

Martin CJ. The Paradox of Occupational and Environmental Medicine (OEM): Popular Among Practitioners, Unpopular Among Candidates for Post Graduate Medical Education (PGME) World Federation for Medical Education Conference. May 2025, Bangkok, Thailand.

Mohammed CA, Velladath SU, Al Shafae M and Martin CJ. Curricular Integration of interprofessional education (IPE) and collaborative practice. World Federation for Medical Education Conference. May 2025, Bangkok, Thailand.

Martin CJ, Woods SA, Bertke S, Pinkerton L. Increased Mortality Among Those Disabled Due to Work-Related Conditions. Interdisciplinary Conference: Creating Sustainable Work. May 7-9, 2025, Stockholm, Sweden.

Martin CJ. The Crisis of Training in Occupational and Environmental Medicine. American Occupational Health Conference. April 29, 2025, Austin, TX.

Dodd KE, Barone Gibbs B, Martin C, Mazurek JM, Groth CP. COVID-19 vaccination uptake among adults with asthma, by occupation. Society for Epidemiologic Research (SER) Conference. June 2023, Portland, Oregon.

Martin CJ, Caviani C, Thomas V, and Karshenas A. Elements of a Successful Postgraduate Training Partnership in the USA for Sponsored International Medical Graduates. World Federation for Medical Education Conference. April 2019, Seoul, South Korea.

Martin CJ and Samaan J. Visiting Student Learning Opportunities: Institutional Engagement in a Global Network. World Federation for Medical Education Conference. April 2019, Seoul, South Korea.

Grant Support and Research

IPA agreement (Martin) 9/1/22 – 8/30/24
 NIOSH – Respiratory Health Division
 CDC/NIOSH, 20% effort

IPA agreement (Martin) 8/10/20 - 8/09/21
 NIOSH – COVID-19
 CDC/NIOSH, 15% effort

D33HP31679 Martin (PI) 5/1/18 - 4/31/24
 Appalachian Training Program in Preventive Medicine
 DHHS/HRSA, approximately \$1.77 million total award

T01 OH008431-04 Martin (PI) 7/1/20 - 6/31/25
 Appalachian Training Program in Occupational Health and Safety
 CDC/NIOSH, approximately \$1.8 million total award

TEACHING ACTIVITIES (past 5 years)

West Virginia University

2020 - 2021 PUBH693C: COVID 19: Contact Tracing and Pandemic Response
 1999 - 2019 Co-course Director and deliver 12 hours of lecture, CCMD 712: Public Health, 120 first-year medical students
 1999-2013, 2015 - 25 Program Director, Occupational and Environmental Medicine Residency

PhD Student Supervision

Penelope Baugham (Epidemiology, graduated 2011)
 Brent Doney (Epidemiology, graduated 2013)
 SueAnn Woods (Occupational & Environmental Health Sciences, graduated 2023)
 Katelynn Dodd (Biostatistics and Epidemiology, current)
 Manal Mutairi (Occupational & Environmental Health Sciences, current)

STATE, NATIONAL AND INTERNATIONAL PRESENTATIONS (by invitation, past 5 years)

Martin CJ. *Precarious employment and public health in Appalachia and Towards a Better Understanding of Vaccine Hesitancy.* Global Health Skills Seminar, November 29, 2024, November 10, 2023. Barcelona Institute for Global Health (ISGlobal), Barcelona, Spain.

Martin CJ. *After the Occupational Injury.* West Virginia Workers' Compensation Association. June 13, 2024. Charleston, WV (online).

Martin CJ. *Much Ado About Nothing: The Placebo Effect.* Global Health Skills Seminar, March 17, 2023. Barcelona Institute for Global Health (ISGlobal), Barcelona, Spain.

Martin CJ. Training on Occupational Epidemiology in OHS. A one-week course taught in person twice January 9-13 and 16-20, 2023 in Ankara, Türkiye and online February 13-24, 2023. Technical Assistance for Strengthening Training and Research Capacity of the Centre for Labour and Social Training and Research (ÇASGEM), Türkiye.

Martin CJ. *After the occupational injury: Disability and mortality.* Interface Demography Research Group, Vrije Universiteit Brussel, Belgium (online), June 16, 2022.

Martin CJ. *After the occupational injury: Disability and mortality.* National Occupational Injury Research Symposium Opening Plenary (online), May 10, 2022.

Martin CJ. *Precarious employment and public health in Appalachia.* Introduction to Occupational Epidemiology: Non-standard Employment, Work Environment and Health, March 31, 2022. Barcelona Institute for Global Health (ISGlobal), Barcelona, Spain.

Martin CJ. *Dangerous Trades: How Work Affects our Health.* Global Health Skills Seminar, January 21, 2022. Barcelona Institute for Global Health (ISGlobal), Barcelona, Spain.

Martin CJ. *Much Ado About Nothing: The Placebo Effect.* Global Health Skills Seminar, March 1, 2022. Barcelona Institute for Global Health (ISGlobal), Barcelona, Spain.

Martin CJ. *Adverse Effects of Work-related Disability.* 3rd International Industrial and Environmental Toxicology Congress (IETOX 2021), Turkey (online), November 4, 2021.

Martin CJ. *Impairment and Disability in Occupational Health.* 2nd International Industrial and Environmental Toxicology Congress (IETOX 2020), Turkey (online), November 22, 2020.

Testimony History

Weston v. March-Westin Company, Inc., Civil Action No.: 19-C-348 (Cir. Ct. of Monongalia Co., W. Va.), deposition May 11, 2023

Lindy & Fred Seco General Revokable Trust v. Keller, No. 22-ICA-82, 2023 WL 1463355 (W. Va. Ct. App. Feb. 2, 2023) deposition July 26, 2021 (provided while case was before the West Virginia Workers' Compensation Board of Review – August 4, 2022 decision)

Statement of Compensation

I am being compensated at my regular rate of \$900 per hour for the preparation of this report and any testimony I provide.